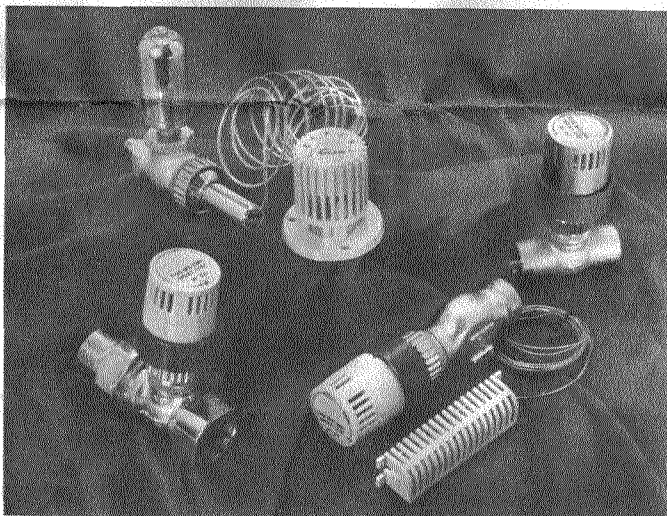




INSTALLATION INSTRUCTIONS AND SPECIFICATIONS FOR T.L.C. (Thermostatic Limit Control) VALVES



1. GENERAL DESCRIPTION

The Flair T.L.C. (Thermostatic Limit Control) valve is a self-contained automatic regulating device which controls the temperature of a room or area by regulating the flow of steam or hot water into a radiator, convactor or baseboard heat exchanger. T.L.C. valves can be easily installed on any low pressure one or two-pipe steam or hot water heating system. T.L.C. valves do not require electrical wiring.

Flair T.L.C. valves provide fuel savings by reducing costly overheating and automatically balancing the system output to match actual room or occupant requirements.

Flair T.L.C. valves can be used as "problem solvers" by installing them in rooms or areas with chronic overheating problems. Please note that Flair T.L.C. valves can only be used to reduce or regulate heat — they cannot produce more heat than the boiler or system would normally supply.

Flair T.L.C. valves are available in remote sensing, remote setting and sensing, and direct sensing models. Optional security covers are available to eliminate tampering and possible valve damage.

2. SPECIFICATIONS

TEMPERATURE SETTINGS	SYMBOLS	
	Self-Contained and Remote	Remote/Remote Sense/Set
45 degree F (Frost Protection)	✱	1
68 degree F	○	4
86 degree F (Full Open)	☆	7
Max. Static Pressure	150 PSI	
Max. Pressure Differential	40 PSI or 92.4 FT/HD	
Max. Operating Pressure (Steam)	15 PSI	
Max. Operating System Temperature	250 degrees F	
Operating Temperature Limit (Ambient)	5°F to 122°F	
Setting Range	45°F to 85°F	

INSTALLATION

INSTALLATION TIPS

(1) It is important that the heating system be clean and free of oil or oil residue. Petroleum distillate can adversely affect the valve seat. Add the proper chemicals and flush the system as required. (NOTE: Special oil-resistant seats are available)

(2) To accurately sense and control room temperature the sensor of a remote T.L.C. operator should be located in an area having good air circulation. Remote sensors should be installed in the return air flow of the heat exchanger. Do not place the sensor in a location subject to constant drafts, or direct sunlight.

(3) When installing direct sensing operators under baseboard, convactor or radiator covers, a two-inch hole must be cut in the cover so that the direct sensing operator can protrude into the room to sense actual room temperatures. See Fig. 1. The operator must protrude a minimum of two inches. (An alternate method of installation is to use Flair remote sensing operators.)



Figure 1

(4) Install T.L.C. valves in an accessible location, allowing adequate space for adjustment and service.

(5) To avoid damage to the thermostatic operator, sweat the valve body in place before attaching the operator.

(6) Do not exceed maximum allowable system temperature and/or pressures (see specifications).

(7) DO NOT install a Flair T.L.C. valve in the same room or area in which the boiler-controlling room thermostat is located.

FLAIR, TLC VALVES and T.L.C. "BOX" are Trademarks of Flair Mfg. Corp.

ONE-PIPE STEAM SYSTEMS

(1) Controls on the steam boiler must provide cycled steam pressure. Cycling the boiler can be accomplished by means of an automatic room thermostat or indoor/outdoor controller.

(2) Replace existing radiator steam air vent with the proper model and size Flair T.L.C. one-pipe steam valve. To avoid damage to the product, install the special air vent and the thermostatic operator after the valve body has been installed on the heat exchanger. The steam air vent must be in a vertical position. See Fig. 2 for typical installations. (If the heat exchanger and vent are located under a cover, the use of a remote sensing operator is suggested).

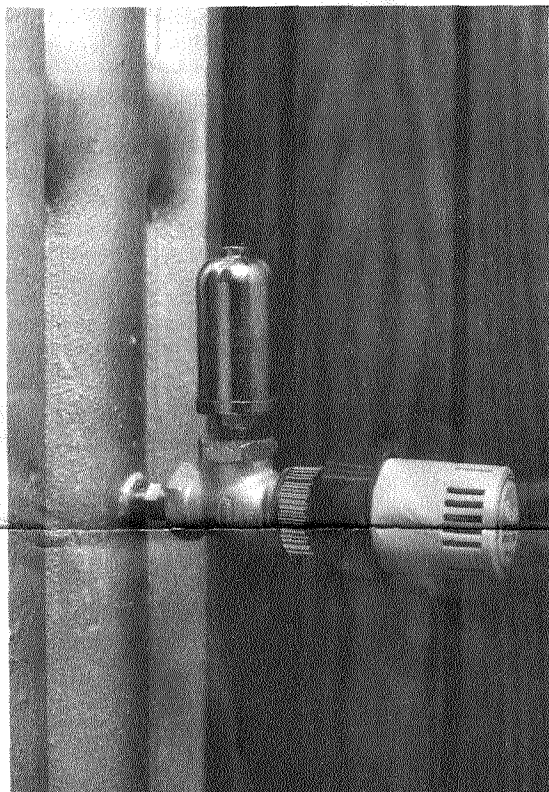


Figure 2

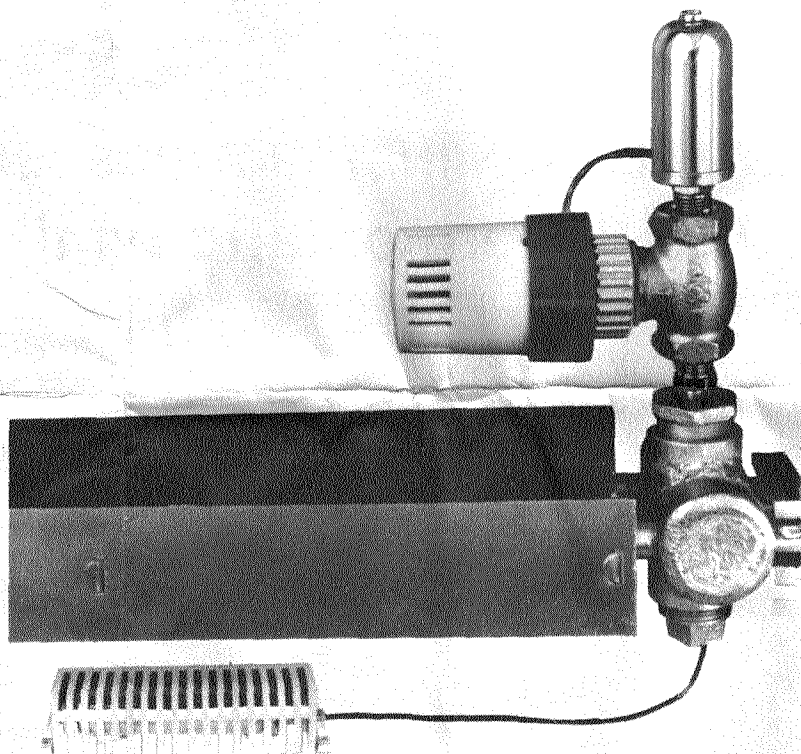


Figure 3

TWO-PIPE STEAM SYSTEMS

Flair T.L.C. two-pipe steam valves replace the existing radiator hand valves on the supply side piping of the heat exchanger. See Fig. 4 for typical installations. (If the valve is to be installed under a cover, use of the remote sensing operator is suggested.) Fig. 5.

(3) The radiator hand valve should be fully open, preferably with the handle removed.

(4) Main air vents must be installed and must be working properly. Do not use vacuum-type air vents.

(5) It is imperative that you use the special 5-year air vent included in the package. The valve is designed for rapid but silent venting. It is also an effective vacuum breaker.

(6) Most one-pipe steam convactor applications will require using the remote sensing operator. The sensor should be mounted directly in the return air flow, under the heat exchanger element. See Fig. 3 for typical installations.

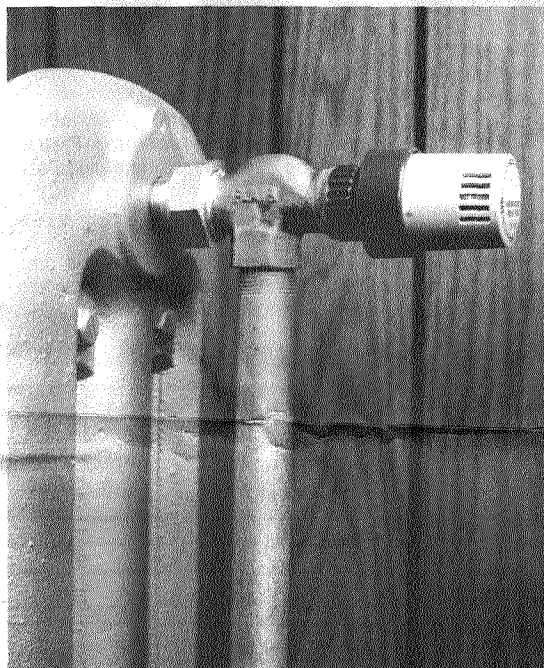


Figure 4

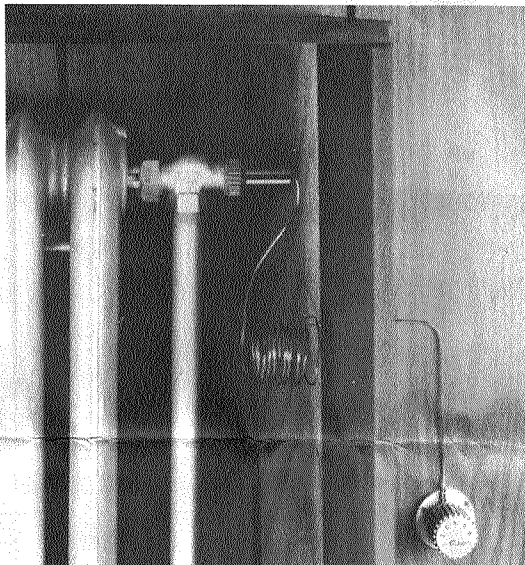


Figure 5

HOT WATER SYSTEMS

The system must be designed for constant circulation. Indoor/outdoor controlled modulating water temperatures are recommended if the most accurate room temperature control is to be maintained. Install the valve as close to the middle of the loop as possible, preferably within the main living area. On free-standing radiators or convectors, the T.L.C. valve replaces the existing hand valve. See Fig. 4 for typical installation. (If the valve is to be installed under a cover, the use of a remote sensing operator is suggested.)

DIRECT AND REMOTE SENSING OPERATORS

A. To lock the valve setting:

- (1) Turn the operator to a desired setting.
- (2) Pull off the dark grey locking ring without turning the operator.
- (3) Align the indicator of the locking ring between the two raised tabs of the operator. See Fig. 6.
- (4) Snap the locking ring back in place.
- (5) The operator is now locked at your desired setting.

NOTE: The indicator of the locking ring will always point to the \odot symbol when the operator is locked.

B. To limit the valve to a maximum temperature:

- (1) Turn the operator to the highest desired setting.
- (2) Pull off the dark grey locking ring without turning the operator.
- (3) Align indicator of locking ring to the left side of the two raised tabs of the operator. See Fig. 6.
- (4) Snap the locking ring back in place.
- (5) The operator is now limited between the frost protection setting and the highest desired setting.

NOTE: The indicator of the locking ring will not correspond to the actual setting. The indicator should be used only as a reference point to adjust high or lower temperatures as desired. The symbol \odot will now correspond to the highest setting.

C. To limit the valve to a minimum temperature:

- (1) Turn the operator to the lowest desired setting.
- (2) Pull off the dark grey locking ring without turning the operator.
- (3) Align indicator of locking ring to the right side of the two raised tabs of the operator. See Fig. 6.
- (4) Snap the locking ring back in place.
- (5) The operator is now limited between the desired lowest setting and the fully open setting.

NOTE: The indicator of the locked ring will no longer correspond to the actual setting. The indicator should be used only as a reference point to adjust higher or lower temperature as desired. The \odot symbol will now correspond to the lowest desired setting.

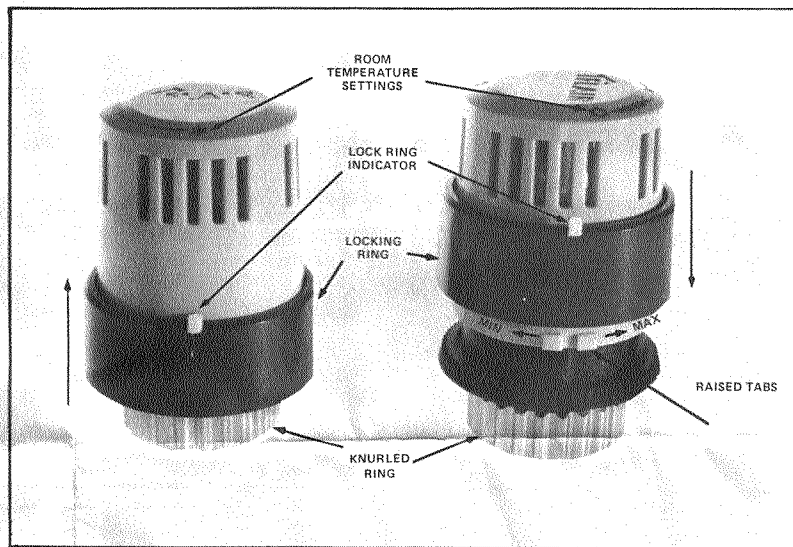


Figure 6

D. To change the valve back to full range;

- (1) Remove the dark grey locking ring.
- (2) Align the indicator of locking ring with orientation notch on black plastic piece of the operator. See Fig. 6.
- (3) Snap the locking ring back in place.

NOTE: Actual valve setting will always correspond to orientation notch.

FOR REMOTE SETTING AND SENSING MODELS

To limit operator to a maximum temperature:

- (1) Turn the operator to the highest desired setting.
- (2) Pull off operator handwheel without turning it. Fig. 7.
- (3) Align #7 on handwheel with the setting indicator.
- (4) Snap the handwheel back in place.
- (5) #7 will now correspond to the highest desired setting.

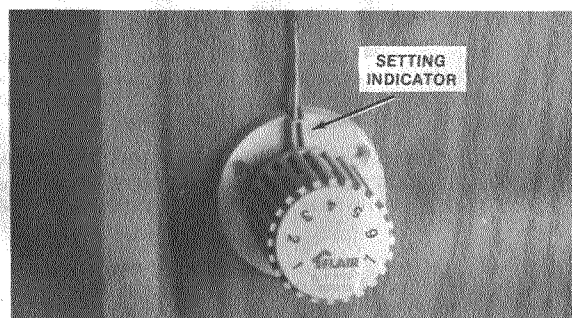
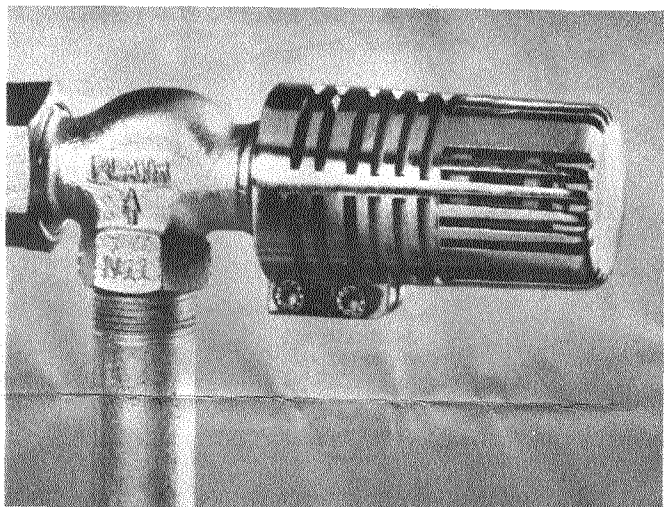


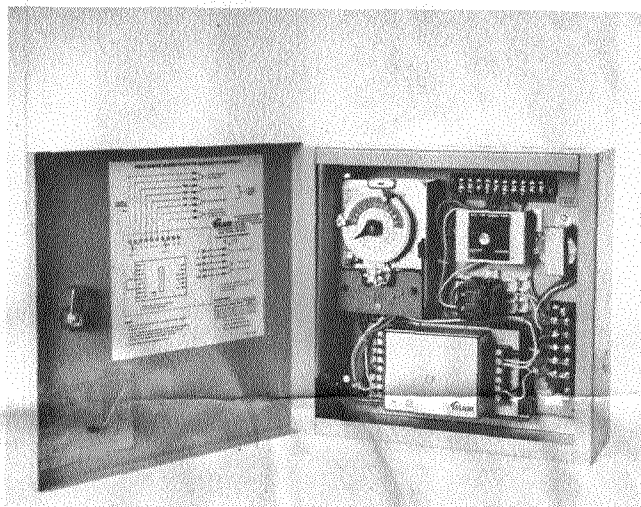
Figure 7

INSTALLING OPERATOR

- (1) Turn the operator to the highest setting.
- (2) Mount the operator on valve body with the indicator of the locking ring in a convenient position.
- (3) First hand-tighten the locking nut and then tighten it an additional 1/4 turn with a pair of pliers. Do not overtighten.
- (4) For remote sensing models, mount the sensor in an appropriate location to sense room temperatures. WARNING: Be careful not to crimp, pinch, or cut capillary tubes.
- (5) For direct sensing models, if required, cut a two-inch hole in the heat exchanger cover so that the operator can protrude into room.
- (6) Set operator to your desired setting.



SECURITY COVER for Flair's T.L.C. (Thermostatic Limit Control) is designed to prevent tampering or vandalism of these energy saving valves. The security cover, sold only with the T.L.C. valve, conceals and protects the temperature adjustment control which permits management to lock the valve at a pre-selected setting.



Flair's T.L.C. "BOX" (Thermostatic Limit Control) will reduce fuel usage and cut operating costs in any centrally heated building by providing the lowest indoor temperatures acceptable. Fully adjustable night and weekend temperature setbacks add to this unit's fuel saving features.

LIMITED WARRANTY

1. THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, WRITTEN OR ORAL, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY, OR FITNESS FOR USE OR FOR A PARTICULAR PURPOSE, WITH RESPECT TO ANY DEVICE MANUFACTURED OR SOLD BY FLAIR, EXCEPT AS HEREIN SET FORTH.
2. This warranty is extended to purchasers of Flair's products that are part of Flair's normal distribution chain and the original retail purchaser.
3. Only devices manufactured or sold by Flair and bearing Flair's nameplate are covered by this warranty.
4. This warranty commences with the date of manufacture as evidenced by the date code on the product and continues for a period of 18 months except where extended by Flair in writing.
5. If any device so manufactured or sold by Flair is claimed to have a defect in workmanship or material under normal use and service during the period covered by this warranty, and after inspection by Flair is found to be defective, Flair will, at its option, either repair or replace such device free of charge, F.O.B. Flair's factory. For purposes of this warranty, if a part of a device is repairable or replaceable, the defective part shall not render the entire device defective.
6. To obtain performance of Flair's warranty obligations, the purchaser must, within the time period set forth above, return the device or part claimed to be defective to a Flair distributor, who, after receiving authorization from Flair should return the product transportation prepaid, to the attention of the Return Goods Department. The product must be accompanied by a legibly written description of the claimed defect, and the distributor's name, address and telephone number.
7. FLAIR ASSUMES NO LIABILITY FOR CONSEQUENTIAL, SPECIAL OR OTHER DAMAGES OR LOSS OF PROFITS OR FOR ANY LABOR CHARGES INCURRED FOR THE INSTALLATION OR REMOVAL OR REPLACEMENT OF ANY FLAIR DEVICE, OR FOR THE USE OR MISUSE OF THE DEVICE BY THE PURCHASER OR ITS AGENTS, OR FOR THE ACTS OF FLAIR'S DISTRIBUTORS OR THE INSTALLING CONTRACTOR OR REPAIRMAN.
8. ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR USE OR FOR A PARTICULAR PURPOSE ARE LIMITED TO THE EXPRESSED DURATION OF THIS WARRANTY LISTED ABOVE.
9. The purchaser, by acceptance of any such devices, assumes all liability for the consequences of its use or misuse by the purchaser, its agents, or repairmen called in by the purchaser.
10. This warranty is void if the Flair product is modified or repaired by anyone other than the manufacturer, or installed by anyone other than a qualified installer or in a manner other than as outlined in Flair's installation instructions. This warranty is void if the product is damaged due to operation above its rated capacity, voltage, frequency of use or life cycle expectancy. Conditions for particular applications will be supplied upon request.
11. Some states do not allow limitations on how long an implied warranty lasts, so some of the above provisions may not apply. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.



FLAIR MANUFACTURING CORPORATION
HAUPPAUGE, L.I., NEW YORK 11788 U.S.A.
(516) 234-3600 **TELEX 64-0485**